1.0 PURPOSE OF AND NEED FOR A PROPOSED ACTION

The Michigan Department of Transportation (MDOT) and the U.S. Federal Highway Administration (FHWA) are studying improvements to US-131, between the Indiana Toll Road in Elkhart County, Indiana, and a point one mile north of Cowling Road in St. Joseph County, Michigan. On this 17-mile segment of US-131, the existing road varies between two-lane, four-lane, and four-lane divided/boulevard cross-sections. Motorists experience a variety of roadway inefficiencies that vary by type and location throughout the project corridor. **Figure 1.1** identifies some of these issues by location.

1.1 Purpose of a Proposed Action

The purpose of this study is to identify potential alternatives that: 1) support the safe and efficient movement of goods and people, and that 2) cost effectively support the economic growth of the region and the State, by improving traffic operations within the study corridor.

1.2 Need for a Proposed Action

Several factors support the need for potential US-131 improvements within the study corridor. These include:

- Assurance of sufficient capacity to accommodate future traffic growth
- Improvement of roadway inefficiencies, and
- Improvement of US-131 highway operations

Level-of-Service: As illustrated in **Figure 1.2**, projected 2025 traffic volumes for the study area indicate that roadway level-of-service (LOS) between Dickinson Road and M-60 will degrade to LOS E during the design hour under the No-Build condition. Level-of-service is rated A to F, and is a qualitative measure of the operational traffic conditions as perceived by a motorist. LOS A is best, and represents free flow traffic conditions. LOS F is perceived by the average motorist as heavy congestion.

Highway Operations and Conflict Points: The cross-section and number of lanes on US-131 varies throughout this study corridor. Approximately 10 miles in the study corridor, in two segments south of M-60, are the only two-lane sections of US-131 south of Cadillac, Michigan.

US-131 system operations are further compromised by a large number of commercial driveways, and several signalized and un-signalized intersections in the City of Three Rivers. Motorists heading south on US-131 from north of Three Rivers travel a rural four-lane divided segment of highway, where access is controlled and driveways are precluded. However, upon entering the north end of the study corridor, they first encounter a traffic signal at Wilbur Road, followed by an abundance of driveways on a narrow median, four-lane divided section of roadway, with periodic direct left turn movements, followed by one segment of roadway operating with parallel opposing left turn lanes. There is relatively dense commercial development along this segment of US-131. The high volumes of vehicle trips generated by commercial land uses in this area create more disruption in traffic flow than is typical for most of US-131 in southern Michigan.

Commercial Traffic Volumes During the Peak Hour: Within the Village of Constantine, the 2025 projected commercial truck volumes for the design hour contribute to the operational concerns within the US-131 corridor. During the design hour, truck volumes within Constantine are projected to reach 200 commercial vehicles out of approximately 1,950 total vehicles, or 10.4% percent of total design hour traffic. Throughout the remainder of the US-131 study corridor, the 2025 design hour commercial truck volumes are projected to be approximately 160 vehicles out of the projected average of 1,840 total vehicles, or about 8.7% of total design hour volumes.

Daily Commercial Traffic Volumes: The daily commercial truck volumes for the study corridor are forecasted to be approximately 2,620, or about 13% of the 20,400 average daily vehicles projected for the year 2025. This volume is greater in the Village of Constantine, where truck volumes are projected to be approximately 2,900 vehicles per day, or about 15% of the total 19,500 forecasted 2025 daily vehicles in the village. Statewide, rural two-lane trunklines carry an average of 9.5 percent commercial truck traffic.

Numerous wide-load commercial vehicles utilize this segment of US-131, which further impede traffic flow and reduce passing opportunities. Many of these wide load vehicle trips are generated by several manufactured housing assembly facilities located immediately south of the study area, and by manufactured housing dealers located within the study area. Larger housing manufacturers identified minimum total shipments of eight to 20 housing units per day traveling north on this segment of US-131. Commercial through traffic on US-131 is projected to grow, based on the projected growth of metropolitan areas of Kalamazoo, and Grand Rapids, which are served by US-131.

Downtown Constantine Concerns: Traffic operations are also adversely affected by on-street parallel parking on both sides of US-131, between Water Street and Riverside Drive in the Village of Constantine, as well as by the associated pedestrian crossings. The above-average volumes of commercial truck traffic have also resulted in Constantine residents expressing concerns about pedestrian safety within the downtown area, as well as traffic noise and vibration.

Crash Analysis: Between January 1, 2000 and December 31, 2002, the US-131 study corridor experienced a total of 490 crashes, including an estimated 114 crashes resulting in injury. This represents an 11% overall reduction in crashes, compared to the 548 total crashes in the study corridor during 1997-1999. During the period of 2000-2002, the study corridor experienced a total crash rate of 153.9 crashes per 100 Million Vehicle Miles of Travel (HMVMT) compared to a 1997-1999 crash rate of 303.7 crashes per HMVMT, resulting in a 49% crash rate reduction from 1997-1999 to 2000-2002. During the years 2000-2002, crash rates for five of the eight US-131 roadway segments under study exceeded both the 2002 statewide average crash rates and the 2002 MDOT Southwest Region average crash rates, for all state trunkline roadways. These segments extend from the northern study limits to M-60, and between Miller's Mill Road and Stears Road, totaling 7.5 miles of roadway out of the 17 miles of US-131 under study. **Figure 1.3** shows the rate of crash incidences by segment and facility type* within the corridor.

*The state database that compiles average crashes by facility type is no longer available. The average crashes within this region by facility type for 2000 - 2002 were derived based on the averages from 1997 - 1999 that were previously obtained from the database. The percent change in the overall crash rate from the 1997-1999 to 2000-2002 time periods were applied uniformly to the crashes for each facility type from 1997-1999 to arrive at the estimated 2000-2002 average crashes by facility type. These figures are estimates for planning purposes only, and are based on engineering judgment. They should be used only as a rough approximation.

During 2000-2002, the analysis indicated that injury crash rates from the north study limits to Hoffman Road, and from M-60 to Michigan Avenue, exceeded both the 2002 statewide and the 2002 MDOT Southwest Region average crash rates for state trunkline roadways.

The comparison to statewide averages is a general statistical comparison, and does not take into account differences in facility types and operating conditions. Recent roadway improvements have been made at some locations along US-131 that have previously experienced higher crash rates. It is anticipated that as passenger and commercial traffic volumes continue to grow, crash exposure will continue to increase.

Geometric Operations: Within the study area, US-131 was first constructed in the 1920s and 1930s, when traffic volumes were much lower than current conditions. Although there have been many subsequent improvements, the geometry of selected intersections continue to constrain traffic operations within the corridor. Examples include cross-road acute angle intersections and the signalized right angle turn on US-131 in Constantine. The locations of some of the noted intersection constraints are identified in **Figure 1.1**, which lists key issues by segment within the US-131 study corridor.

Passing Limitations: Limited passing opportunities on the existing two-lane segments of US-131 also contribute to roadway inefficiencies. The area north of the Village of Constantine has rolling terrain, with the steepest grades located between Drummond Road and Gleason Road. Climbing speeds of heavy trucks slow traffic at this location. Sight distances are limited, requiring that most of this one-mile segment of US-131 be posted as a "No Passing" zone. Other segments of US-131 posted as "No Passing" include approximately one mile through the Village of Constantine, and approximately three-quarters of a mile north of the Indiana Toll Road.

1.3 Summary

As outlined above, the purpose of and need for potential US-131 improvements is key in the evaluation of alternatives and the ultimate selection of a particular alternative. Within the Village of Constantine, commercial truck traffic will remain relatively high for a rural community. As passenger and commercial traffic volumes continue to grow, conditions will begin to degrade. Without improvements, some parts of the corridor will experience LOS E, and certain intersections and roadway segments will experience periodic backups and other roadway inefficiencies.

This study identifies various types of improvements that could address these inefficiencies in the near and long term future. Traffic, social, economic, and environmental impact analysis has been conducted, as alternatives have been developed and refined. Public input has also been garnered, and this process will continue throughout the study. This technical evaluation, together with public and regulatory agency input, will assist in identifying what improvements may be necessary to address the purpose of and need for a proposed action. These processes will be utilized in assessing whether the potential benefit gained will warrant the impacts and costs that might be incurred with any given alternative.

1.4 Goals of the US-131 Stakeholder Advisory Committee

In 1996, the US-131 Master Plan Committee began meeting to identify and discuss the feasibility of improving the US-131 corridor within St. Joseph and Kalamazoo Counties, Michigan. One of the goals of this committee was to allow the local community and citizen groups the opportunity to plan for and identify future land uses, as they relate to future transportation needs in the corridor. This group, comprised of two representatives from each governmental agency located along US-131, assisted MDOT in identifying a corridor where improvement efforts would be focused. This committee continued to serve as an Advisory Committee during the evaluation of alternatives for this study. In July 2000, the Stakeholder Advisory Committee met with MDOT to identify and prioritize goals for the US-131 Improvement Study. The following summarizes the goals identified during these strategic goal-setting sessions:

- Use the existing US-131 corridor as much as possible.
- Minimize the loss of homes, businesses, farms, communities, and environmental impacts.
- Use overpasses for local roads if possible for freeway alternatives so that the community is not divided from east to west and access is provided for emergency vehicles, school traffic, and industrial development.
- Create an easily maintainable highway.
- Minimize traffic noise.
- Landscape the highway with trees, shrubs, and wildflowers if possible without increasing the amount of right-of-way necessary.
- Relieve congestion on US-131 within the study corridor.
- Do not preclude future US-131 improvements north of Three Rivers.

These goals served as guiding principles in the development of the US-131 improvement alternatives.

Insert Figure 1.1

Insert Figure 1.2

Insert Figure 1.3